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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/655,323

09/05/2003

Hideo Asakawa

0055/035001

5857

22893

7590

02/25/2005

SMITH PATENT OFFICE  
1901 PENNSYLVANIA AVENUE N W  
SUITE 200  
WASHINGTON, DC 20006

EXAMINER

DICKEY, THOMAS L

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b></p> <p align="center">10/655,323</p>	<p><b>Applicant(s)</b></p> <p align="center">ASAKAWA, HIDEO</p>	
	<p><b>Examiner</b></p> <p align="center">Thomas L. Dickey</p>	<p><b>Art Unit</b></p> <p align="center">2826</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 11-13 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 7, 8, 14-31 and 34-38 is/are allowed.
- 6) ☒ Claim(s) 6, 10 and 33 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
**Minhloan Tran**  
**Primary Examiner**  
**Art Unit 2826**

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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## DETAILED ACTION

1. The amendment filed on 12/23/2004 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Nitta et al. (6,747,293).

Nitta et al. discloses a semiconductor device 100 comprising a semiconductor element 106; a support member 103 having a recess 104 for housing the semiconductor element 106, the support member 103 including lead electrodes 101-102 and a support part (no specific part #, it is seen as part of the support member 103 formed underneath and supporting the lead electrodes) holding the lead electrodes 101-102 so that a surface of each of the lead electrodes 101-102 is exposed in a bottom of the recess 104; wherein the support member 103 has a first surface (no #, it is the surface forming the top of said support member) disposed outside of the recess 104, a second surface (no #, it is the surface, besides the top surface, forming the outside of

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said support member) disposed outside of and offset from the first surface of the support member 103; a sealing member 111 within the support member 103 recess 104; and a translucent member 213 for allowing light to exit from the semiconductor device, or for allowing light to be received by the semiconductor device, the translucent member 213 having a light entrance portion (the bottom, in contact with part 111, configured so that a gap is formed between the emission surface and the light entrance portion) and a light emitting portion; wherein the sealing member 111 has an emission surface below said first surface. Note figure 2 of Nitta et al.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over CHIU ET AL. (2001/0010449).

In an embodiment, Chiu et al. discloses a semiconductor device comprising a semiconductor element 300; a support member 330 having a recess (the recess is seen, filled with resin 320) for housing the semiconductor element 300, the support member 330 including lead electrodes 314 (in figure 3 through a draftsman's oversight only one lead electrode – the one operatively connected to contact electrode 308B of the semiconductor element 300 - is marked. However the other lead electrode is clearly

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seen, operatively connected to contact electrode 308A of the semiconductor element 300), operatively connected by a conductive member 312 to the semiconductor element 300, wherein the support member 330 has at least a first surface disposed adjacent to the recess and a second surface disposed adjacent to and offset from the first surface of the support member 330; and a sub-mount substrate 310 disposed in the recess and the semiconductor element 300 being disposed on the sub-mount substrate 310. Note figure 3 and paragraphs 0021-0026 of Chiu et al. In said embodiment, Chiu et al. does not disclose the use of conductive paste material disposed between sub-mount and lead electrodes. However, Chiu et al. also discloses, as related art, the use of conductive paste material disposed between sub-mount and lead electrodes. According to Chiu et al., conductive paste is preferred at low power (20 mA) applications. Note paragraph 0028 of Chiu et al. Therefore, it would have been obvious to a person having skill in the art to replace the solder of Chiu et al.'s semiconductor device with the conductive paste such as taught by Chiu et al. in their related art, in order to efficiently connect the sub-mount to the electrodes at low power applications to thus provide a low power LED with all the advantages of Chiu et al.'s high power LED, excepting high power.

***Allowable Subject Matter***

4. Claims 1-3,7,8,14-31, and 34-37 are allowed over the references of record because none of these references disclosed or can be combined to yield the claimed invention

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such as a semiconductor device comprising a semiconductor element; a support member having a recess for housing the semiconductor element, the support member including lead electrodes and a support part holding the lead electrodes so that a surface of each of the lead electrodes is exposed in a bottom of the recess; wherein the support member has at least one surface disposed outside of the recess, said surface including a notch, as recited in claim 1, or said surface including at least one of a protrusion and a further recess disposed thereon, as recited in claims 2,7 and 14.

5. Claims 4 and 5 are allowed over the references of record because none of these references disclosed or can be combined to yield the claimed invention such as a semiconductor device having a support, a recess, lead electrodes, first and second surfaces, and a semiconductor element comprising a semiconductor having at least an N-type contact layer and a P-side contact layer, wherein the N-type contact layer has an N-side electrode, and the N-type contact layer and the P-side contact layer each have separately recited P-side electrodes, as recited in claim 4.

6. Claim 38 is allowed over the references of record because none of these references disclosed or can be combined to yield the claimed invention such as a semiconductor device comprising a semiconductor element; a support member having a recess for housing the semiconductor element, the support member including lead electrodes and a support part holding the lead electrodes so that a surface of each of the lead electrodes is exposed in a bottom of the recess; wherein the support member has at

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least two surface disposed **outside of** the recess, said surfaces meeting each other by an obtuse angle of less than 90 degrees. It is noted that claim 38, a new claim, finds support in the original application, at figure 18A.

7. Claim 32 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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